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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,069	07/10/2006	Naoto Nakamura	122733	6541
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EXAMINER				
TRINH, HOA B				
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2893				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/528,069

**Applicant(s)**

NAKAMURA ET AL.

**Examiner**

HOA B. TRINH

**Art Unit**

2893

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 15-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-08)  
Paper No(s)/Mail Date 03/15/05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Claims 15-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group and/or species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 08/25/2008.
2. Applicant's election with traverse of group I in the reply filed on 8/25/08 is acknowledged. The traversal is on the ground(s) that there is no serious burden on the examiner to examine the entire application. This is not found persuasive because as stated in the restriction requirement the product can be made by another materially different process.

With respect to the species election, the examiner has reconsidered the restriction and examines all of the species' claims 1-14.

The requirement is still deemed proper and is therefore made FINAL.

***Claim Objections***

3. Claims 1-14 are objected to because of the following informalities: The preambles of claims 1-14 are not clear because the claims do not explicitly recite a transitional phrase (i.e. comprising or consisting of ) whether or not the claimed elements are closed-end or open-end. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 6 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Satoshi (10-242254; applicant cited).

As to claim 6, a thermal treatment apparatus for heat-treating a substrate 14 (abstract) with the substrate being supported by a substrate support 10 (abstract), wherein the substrate support 10 (abstract) has a main body portion and a supporting portion which is provided on the main body portion and in contact with the substrate, the supporting portion 10 is made of silicon (abstract), and a substrate-placing face of the supporting portion, on which the substrate 14 (abstract) is placed, is coated with a film 12 (abstract) comprising one or a plural number of materials of silicon carbide (SiC) (abstract), silicon nitride (Si<sub>3</sub>N<sub>4</sub>), silicon oxide (SiO<sub>2</sub>), glassy carbon, and microcrystalline diamond. Note that the term “substrate” is interpreted as a layer capable of supporting other feature thereon.

As to 14, a thermal treatment apparatus for heat-treating a substrate 14 (abstract) with the substrate being supported by a substrate support 10 (abstract), wherein the substrate support 10 (abstract) has a main body portion and a supporting portion which is provided on the main body portion and in contact with the substrate, and the supporting portion is made of silicon (abstract), and a coating film 12 (abstract) is formed on a substrate-placing face of the supporting portion, and the hardness of the coating film is lower than the hardness of the substrate during heat treatment at heat treatment temperature, or the coating film is amorphous. It is noted that the heat treatment limitation is considered, but it is not structurally distinguish over the prior art.

The court has been held that the patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F. 2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

6. Claims 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Takehiro (2001-358086; applicant cited).

Takehiro discloses a thermal treatment apparatus for heat-treating a substrate 1 with the substrate being supported by a substrate support 11, wherein the substrate support 11 has a main body portion and a supporting portion which is provided on the main body portion and in contact with the substrate, the supporting portion 11 is made of silicon, and a plural number of different films 10, 1 (abstract) are stacked on a substrate-placing face of the supporting portion 11, and the hardness of an uppermost film is the lowest in the plural number of films at heat treatment temperature, or the uppermost film is amorphous (abstract).

As to claim 11, Takehiro discloses the plural number of films comprise any of materials of silicon carbide (SiC), silicon nitride (Si<sub>3</sub>N<sub>4</sub>), polycrystalline silicon (Poly-Si), silicon oxide (SiO<sub>2</sub>), glassy carbon, and microcrystalline diamond (paragraph [0021]).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takehiro et al. (2001-358086; hereinafter as Takehiro).

As to claims 1-4, Takehiro discloses a thermal treatment apparatus for heat-treating a substrate 1 (abstract) with the substrate being supported by a substrate support 11 (abstract), wherein the substrate support 11 (abstract) has a main body portion (bottom portion) and a supporting portion 11 (top portion) which is provided on the main body portion and in contact with the substrate 1 (abstract), and the supporting portion is formed from a silicon platelike-member having a general thickness larger than the thickness of the substrate 1 (abstract). However, the structure of Takchiro has a general thickness for the supporting portion.

Accordingly, as to claims 1-4, it would have been obvious to one of ordinary skill in the art to use the supporting portion teaching of Takehiro being larger with specific ranges than the thickness for the substrate as claimed, because it has been held that where the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. See In re Aller, 220 F.2d 454, 105 USPQ 233,235 (CCPA 1955).

As to claim 5, wherein a substrate-placing face 1 (abstract) of the supporting portion 11, on which the substrate 1 (abstract) is placed, is provided with an anti-adhesion layer 10 (abstract) for preventing adhesion between the substrate and the supporting portion.

11. Claim 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi, as applied to claim 6 above.

As to claims 7-9, Satoshi discloses the invention substantially as claimed, except the silicon carbide (SiC) film has specific thickness ranges as claimed in claims 7-9. However, the structure of Satoshi has a general thickness for the SiC layer 12. Accordingly, as to claims 7-9, it would have been obvious to one of ordinary skill in the art to use the SiC layer teaching of Satoshi with the specific ranges as claimed, because it has been held that where the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. See In re Aller, 220 F.2d 454, 105 USPQ 233,235 (CCPA 1955).

12. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takehiro in view of Satoshi (applicant cited the references).

Takehiro discloses a thermal treatment apparatus for heat-treating a substrate 1 with the substrate being supported by a substrate support 11, wherein the substrate support 11 has a main body portion and a supporting portion which is provided on the main body portion and in contact with the substrate, the supporting portion 11 is made of silicon, and a plural number of different films 10, 1 (abstract) are stacked on a substrate-placing face of the supporting portion 11, and the hardness of an uppermost film is the lowest in the plural number of films at heat treatment temperature, or the uppermost film is amorphous (abstract). However, Takehiro does not disclose that the uppermost film is a silicon oxide ( $\text{SiO}_2$ ) film.

Satoshi discloses a substrate support 10 having plural layers on the substrate support; wherein the top layer is  $\text{SiO}_2$ .

Therefore, as to claims 12-13, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the top layer of Takehiro with  $\text{SiO}_2$  layer, as taught by Satoshi, because it is known in the art that the  $\text{SiO}_2$  layer provides protection from damage or diffusion of impurity to the layer underneath.



### **Conclusion**

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to (Vikki) Hoa B. Trinh whose telephone number is (571) 272-1719. The Examiner can normally be reached from Monday-Friday, 9:00 AM - 5:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Ms. Davienne Monbleau, can be reached at (571) 272-1945. The office fax number is 571-273-8300.

Any request for information regarding to the **status** of an application may be obtained from the **Patent Application Information Retrieval (PAIR) system**. Also, status information for published applications may be obtained from either Private PAIR or Public Pair. In addition, status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. If you have questions pertaining to the Private PAIR system, please contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Lastly, paper copies of cited U.S. patents and U.S. patent application publications have ceased to be mailed to applicants with Office actions since June 2004. Paper copies of foreign patents and non-patent literature will continue to be included with office actions. These cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site ([www.uspto.gov](http://www.uspto.gov)), from the Office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197 for information on this policy.

Requests to restart a period for response due to a missing U.S. patent or patent application publications will not be granted.

/(Vikki) Hoa B Trinh/

Examiner, Art Unit 2893